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# UK Patent Application

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(71) Applicant  
NEC Corporation

(Incorporated in Japan)

7-1, Shiba 5-Chome, Minato-Ku, Tokyo 108-01, Japan

(72) Inventor  
Mafumi Miyashita

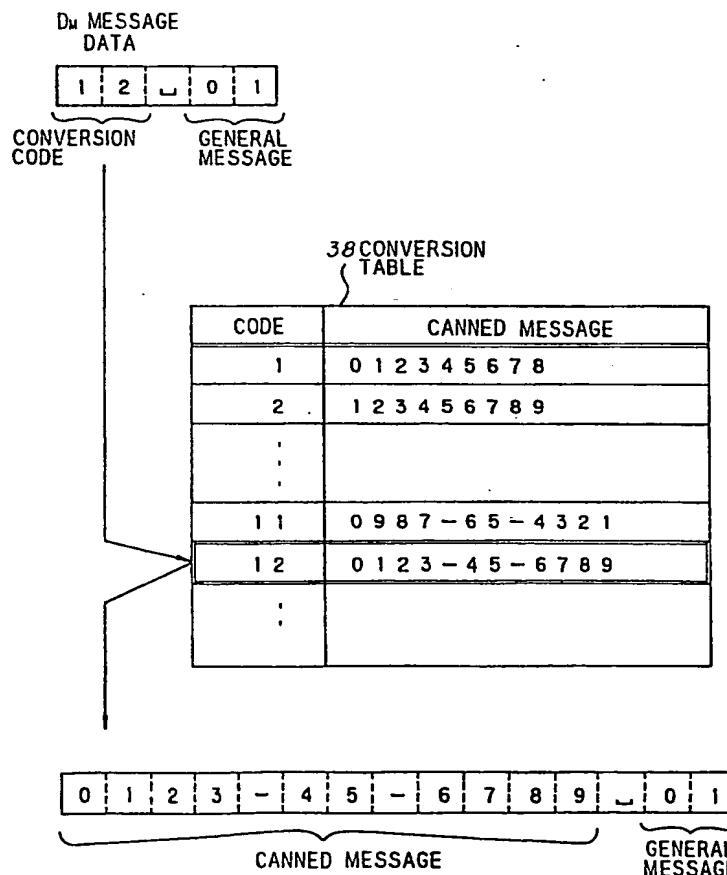
(74) Agent and/or Address for Service

John Orchard & Co  
Staple Inn Buildings North, High Holborn, London,  
WC1V 7PZ, United Kingdom

## (54) Paging receiver

FIG. 2

(57) A paging receiver has a conversion table 38 for storing plural canned messages. When a space data is included in one of certain positions in a received signal, data preceding the space data is determined as a conversion code. The conversion code is converted to a corresponding canned message using the conversion table 38. Information including the canned message, and a general message following the space data in the received signal, is displayed.



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1990.

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FIG. 1

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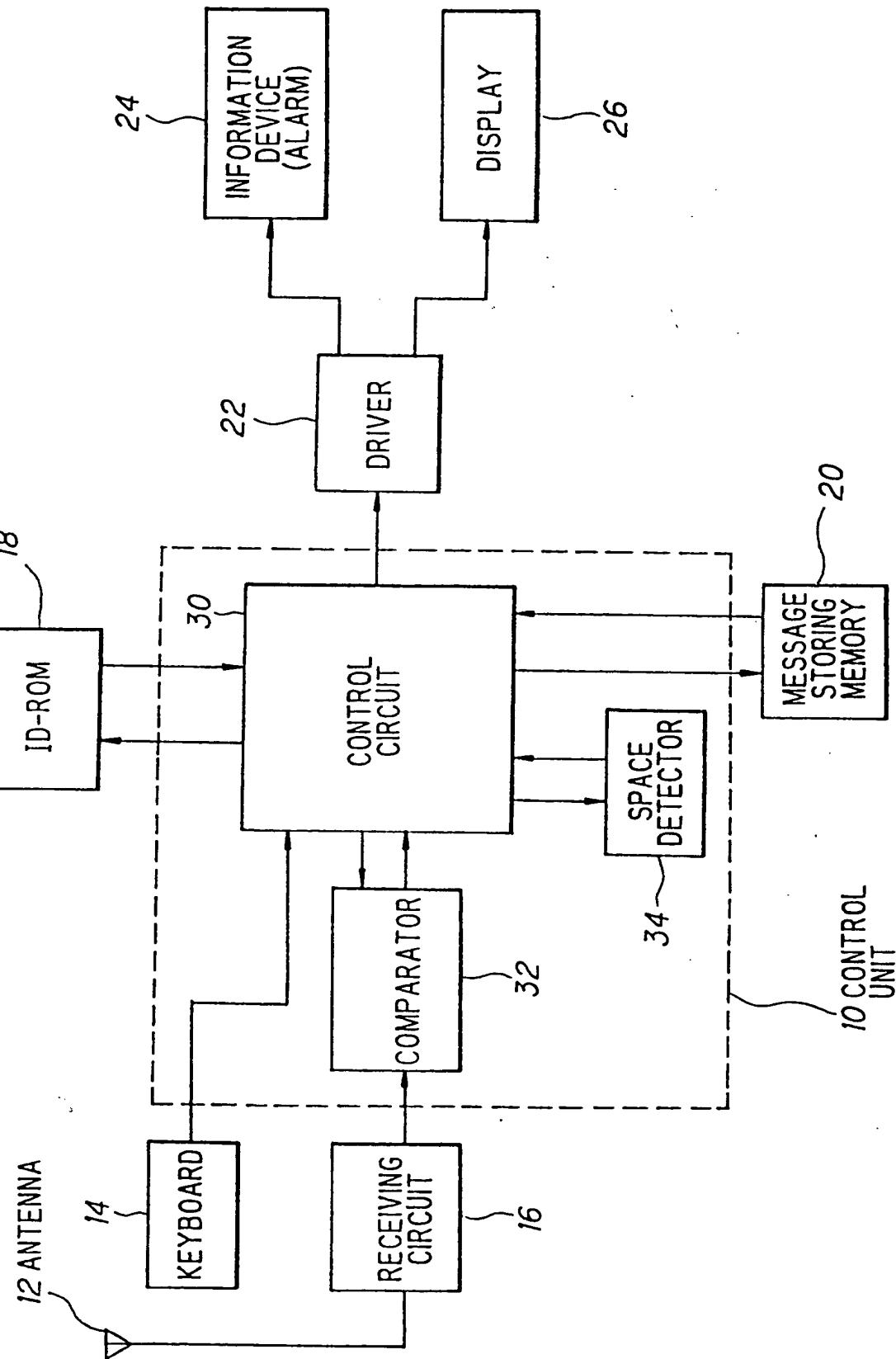
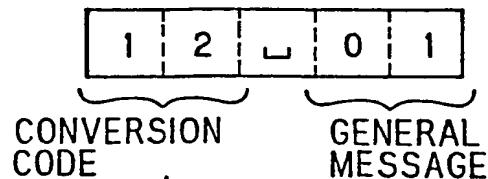


FIG. 2

DM MESSAGE  
DATA



## 38 CONVERSION ( TABLE

CODE	CANNED MESSAGE
1	0 1 2 3 4 5 6 7 8
2	1 2 3 4 5 6 7 8 9
:	
11	0 9 8 7 - 6 5 - 4 3 2 1
12	0 1 2 3 - 4 5 - 6 7 8 9
:	

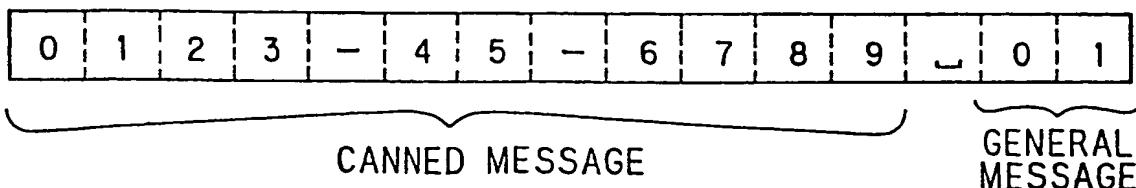
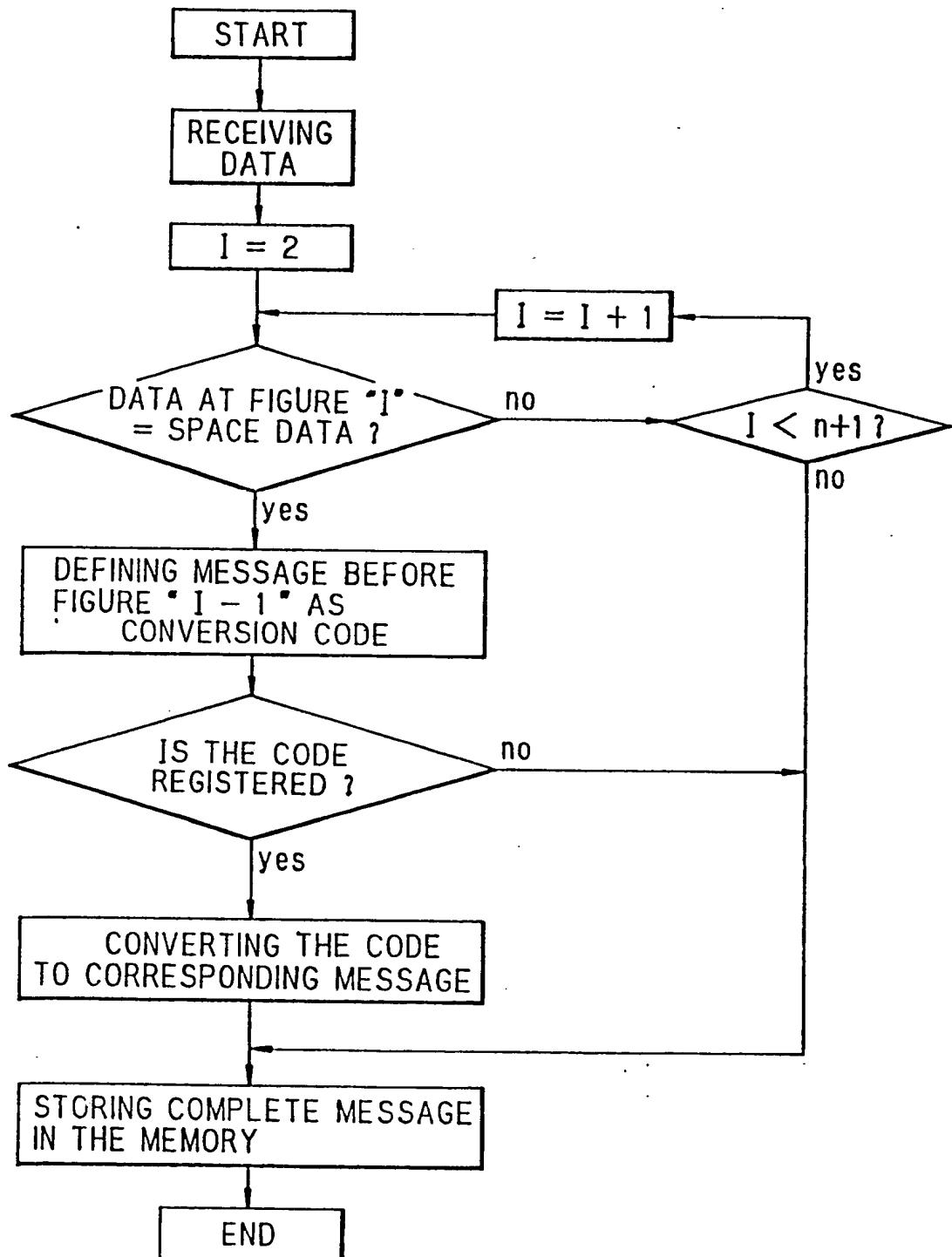


FIG. 3



# FIG. 4

## TRANSMISSION REQUEST DATA

1	2
---	---

## RECEIVED DATA

1	2	□	□	□
				

SPACE

## DISPLAYED MESSAGE

0	1	2	3	-	4	5	-	6	7	8	9	□
---	---	---	---	---	---	---	---	---	---	---	---	---

## PAGING RECEIVER

5        This invention relates to a paging receiver, and more particularly, to a paging receiver with a display function.

10      A recent paging receiver is provided with a display function to show a received message such as a telephone number of the caller, a telephone number of a voice mail, etc.

15      A first conventional paging receiver includes a display device which displays all content of a received message directly. According to the paging receiver, however, there is a disadvantage in that it takes a long time to transmit a long message from a transmitter like a telephone set.

20      A second conventional paging receiver is provided with a conversion table storing plural kinds of canned messages. One type of the second conventional paging receiver includes a detector for detecting a predetermined code in a received signal. In the paging receiver, data following the detected 25 code is converted to a corresponding canned message stored in the conversion table, and the canned message

is displayed.

Another type of the second conventional paging receiver includes a detector for detecting a specific code in a received signal. In the paging receiver, 5 operation mode changes to a conversion mode when the specific code is detected thereby. In the conversion mode, the received signal is converted to a corresponding canned message.

According to the second conventional paging 10 receiver, however, there is a disadvantage in that the received signal is complicated to be converted to a canned message, so that the paging receiver becomes impractical.

A third conventional paging receiver includes 15 a conversion circuit for converting a word data of the first figure in a received signal to canned message corresponding to the word data. Then, the canned message is displayed. According to the third conventional paging receiver, however, there is a 20 disadvantage in that a general message can not be displayed when the canned message is displayed.

A feature of one paging receiver to be 25 described is that a conversion code can be converted to a corresponding canned message

easily, despite that both of a canned message and a general message can be displayed at the same time.

In one embodiment to be described, a paging receiver includes:

- 5           means for receiving a transmitted signal to provide a received signal, the received signal including a selective call signal and a message signal, the message signal being of plural figures and including a conversion code and a space code;
- 10           means for comparing the selective call signal to an identification number of the paging receiver to provide a coincidence signal, when the selective call signal is identical to the identification number;
- 15           means for storing message at addresses corresponding to conversion codes;
- means for checking the message signal as to whether the space code is detected in a predetermined figure among the plural figures, when the coincidence signal is generated;
- 20           means for accessing to the storing means to read a message corresponding to the conversion code of the message signal in the received signal, when the space code is detected in the predetermined figure; and
- 25           means for displaying the message read by the accessing means.

An embodiment of the invention will

now be described, by way of example, with reference to the accompanying drawings, in which:-

5

Fig. 1 is a block diagram showing a paging receiver of a preferred embodiment,

10 Figs. 2 and 4 are schematic views used for explaining operation of the preferred embodiment, respectively, and

Fig. 3 is a flow chart showing operation of the first preferred embodiment.

15

Fig. 1 shows a paging receiver of a preferred embodiment according to the invention, which receives a signal transmitted from a paging transmitter. The paging receiver includes a control unit 10, an antenna 12 for receiving a transmitted signal including a call signal and a message signal, a keyboard 14 connected to the control unit 10 for supplying a predetermined data thereto, a receiving circuit 16 connected to the antenna 12, an ID-ROM 18 connected to the control unit 10, a message storing memory 20 connected to the control unit 10, a driver 22 connected to the control

unit 10, an information device 24 connected to the driver to be driven thereby, and a display 26 connected to the driver 22 to be driven thereby.

5       The receiving circuit 16 demodulates a signal modulated on a carrier signal supplied from the antenna 12 to a call signal and a message signal. The ID-ROM 18 stores a conversion table 38 shown in Fig. 2, a predetermined program and an ID number for the paging receiver. Such information stored in the ID-ROM may be 10 modified and new information may be added thereto by an operator using the keyboard 14.

15       The control unit 10 includes a control circuit 30 connected to the keyboard 14, the ID-ROM 18, the message storing memory 20 and the driver 22 to control them, respectively, a comparator 32 connected to the receiving circuit 16 and the control circuit 30, and a space detector 34 connected to the control circuit 30.

20       The comparator 32 compares a call number included in a received signal to the ID number stored in the ID-ROM, and supplies a coincidence signal to the control circuit 30 when the received call number is coincident to the ID number. The space detector 34 detects whether a space data is present in the first 25 three figures of a received data  $D_M$ .

The conversion table 38 stored in the ID-ROM

18 includes plural kinds of canned messages corresponding to a plurality of conversion codes.

Next, operation of the preferred embodiment will be explained in conjunction with Figs. 2 and 3.

5 When a message signal is transmitted from paging transmitter, the signal is received at the antenna 12 of the paging receiver. Part of the received signal is shown in Fig. 2 as a message signal including a conversion code "12", a space data "\_", and a general 10 message "01", which are generated by pressing key buttons of the transmitter, for example, the space data is generated by pressing buttons of an asterisk "\*" and "2". The message signal is generated by CCIR (Comité Consulatif International des Radiocommunications) No.1 15 as one block having five figures each having four bits.

When the transmitted signal is received at the antenna 12, the received signal is supplied to the receiving circuit 16, and the received signal is demodulated to provide a call signal and the above 20 described message signal. Then, the modulated signal is supplied to the comparator 32, and the call signal is compared to the ID number stored in the ID-ROM 18. At this time, if the call signal is coincident to the ID number, a coincidence signal is supplied to the 25 control circuit 30.

When the coincidence signal is supplied to

the control circuit 30, the space data of the third figure in the message data  $D_m$  is checked by the space detector 34. When it is detected that the space data is present therein, data "12" preceding the space data 5 is determined as a conversion code and data following the space data "01" is determined as general message, respectively. If a space data is not detected by the space detector 34, all message data is determined as general message.

10 In response to the conversion code "12", a canned message "0123-45-6789" corresponding to the conversion code "12" is read from the conversion table 38 of the ID-ROM 18 by the control circuit 30. The canned message "0123-45-6789" is combined with the 15 general message "01" to generate a complete message "0123-45-6789\_01", and the complete message "0123-45-6789\_01" is supplied to the message storing memory 20 to be stored therein.

20 After that, the complete message "0123-45-6789\_01" is supplied from the message storing memory 20 through the control circuit 30 to the driver 22. Then, the message is supplied to the display 26 and the information circuit 24, so that the message "0123-45-6789\_01" is displayed by the display 26 and a 25 predetermined alarm is generated by the information circuit 24.

Otherwise, if the received data includes no conversion code, or the conversion table 38 does not have data corresponding to the conversion code, the received data is displayed directly without conversion 5 by the display 26.

In Fig. 3, a second figure ( $I=2$ ) of a received signal is checked as to whether the figure is a space code or not. When the figure is the space code, the above described conversion sequence starts to 10 provide a converted message. On the other hand, when the figure is not the space data, a third figure ( $I=I+1$ ) of the received signal is checked in the same manner, so that the same control is carried out. Here, if it is assumed that a number "n" is 3, a fourth 15 figure of the received data is no longer checked, because the relation of " $I < n+1$ " is not met.

Fig. 5 shows another case in which a transmitting data includes only a conversion code "12" therein. When only a conversion code "12" is 20 instructed to be transmitted in a transmitter (not shown), a signal of "12\_\_" is generated therein to be transmitted to the paging receiver.

In the receiver, the first space data next to "2" is detected by the space detector 34, so that data 25 "12" is determined as a conversion data. Therefore, only canned message "0123-45-6789" corresponding to the

conversion code "12" is displayed by the display 26.

Although the invention has been described with respect to specific embodiment for complete and clear disclosure, the appended claims are not to be thus limited but are to be construed as embodying all modification and alternative constructions that may be occur to one skilled in the art which fairly fall within the scope of the claims.

CLAIMS

1. A paging receiver, comprising:

means for receiving a transmitted signal to provide a received signal, said received signal including a selective call signal and a message signal, 5 said message signal being of plural figures and including a conversion code and a space code;

means for comparing said selective call signal to an identification number of said paging receiver to provide a coincidence signal, when said 10 selective call signal is identical to said identification number;

means for storing message at addresses corresponding to conversion codes;

means for checking said message signal as to 15 whether said space code is detected in a predetermined figure among said plural figures, when said coincidence signal is generated;

means for accessing to said storing means to read a message corresponding to said conversion code of 20 said message signal in said received signal, when said space code is detected in said predetermined figure; and

means for displaying said message read by said accessing means.

2. A paging receiver, according to claim 1,  
wherein:

5 said receiving means receives said transmitted signals to provide said received signal including said selective call signal and said message signal, said message signal including said conversion code, said space code, and a general code; and

said displaying means displays said message and information of said general code.

3. A paging receiver, according to claim 1,  
wherein:

5 said checking means checks a second figure of said message signal to detect said space code, and a predetermined number of figures following said second figure of said message signal subsequently until said space code is detected when said second figure is not said space code.

4. A paging receiver, comprising:

means for storing plural canned messages corresponding to conversion codes;

5 means for detecting a space data in one of first predetermined figures in a received signal;

means for determining data preceding a

detected space data as a conversion code and data following said detected space data as a general message;

10 means for reading a message corresponding to said conversion code from said plural canned messages in said storing means; and

means for displaying information which includes said canned message and said general message.

5. A paging receiver, according to claim 4, wherein:

said conversion code, said canned message and said general message are numerical data.

6. A paging receiver as claimed in claim 1 substantially as described herein with reference to the accompanying drawings.

Patents Act 1977

Examiner's report to the Comptroller under  
Section 17 (The Search Report)

Application number

GB 9300982.7

Relevant Technical fields

(i) UK CI (Edition L ) G4H (HRCU)

(ii) Int CI (Edition 5 ) G08B, H04B

Search Examiner

M J DAVIS

Date of Search

24 MARCH 1993

Documents considered relevant following a search in respect of claims 1-6

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
	NONE	



Category	Identity of document and relevant passages	Relevant to claim(s)

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